

WASHING MACHINE SERVICE MANUAL

CAUTION

READ THIS MANUAL CAREFULLY TO DIAGNOSE TROUBLES CORRECTLY BEFORE OFFERING SERVICE.

MODEL: WD-1433RD



FEB. 2005 PRINTED IN KOREA

P/No.:3828ER3035R

CONTENTS

1. SPECIFICATION	3
2. FEATURES & TECHNICAL EXPLANATION	
3. PARTS IDENTIFICATION	6
4. INSTALLATION	7
5. OPERATION	10
6. WIRING DIAGRAM / PROGRAM CHART	12
7. TROUBLE SHOOTING	13
7-1.BEFORE SVC CHECKING	13
7-2.QC TEST MODE	13
7-3.HOW TO KNOW THE WATER LEVEL FREQUENCY	13
7-4.ERROR DISPLAY	14
8. ERROR DIAGNOSIS AND CHECK LIST	16
8-1. DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION	16
8-2. FAULT DIAGNOSIS AND TROUBLE SHOOTING	19
9. DISASSEMBLY INSTRUCTIONS	29
10. EXPLODED VIEW AND PARTS LIST	39
10-1. THE EXPLODED VIEW OF CABINET ASSEMBLY	39
10-2. THE EXPLODED VIEW OF CONTROL PANEL AND DISPENSER ASSEMBLY	40
10-3. THE EXPLODED VIEW OF DRUM AND TUB ASSEMBLY	41
10-4. THE EXPLODED VIEW OF DRYER	42
APPENDIX (Replacement parts list)	43

1. SPECIFICATION

ITEM		WD-1433RD	
POWER SUPPLY		220V-240V~, 50HZ	
PRODUCT WEIGHT			61kg
	WASHING	135W	
ELECTRICITY	SPIN		530W
CONSUMPTION	FAN MOTOR		25W
	DRAIN MOTOR		32W
	WASH HEATER		2000W
	DRY HEATER		1200W
REVOLUTION	WASH	45rpm	
SPEED	SPIN	WD-1433RD	400/600/800/1000/1200/1400 rpm
		WD-1233RD	400/600/800/1000/1200 rpm
OPERATION WAT	ER PRESSURE	0.3-10kgf/	cm² (30-1000kPa)
CONTR	OL TYPE	Electronic	
WASH CAPACITY		7.0kg (Cotton)	
DRY CAF	PACITY	4.0kg (Cotton)	
DIMEN	SION	600mm(W) ×550mm(D) ×850mm(H)	
WASH PRO	OGRAM	Cotton, Cotton-Eco, Synthetic, Delicate, Wool/Silk, Hand Wash, Quick 30	
OPTION		Intensive, Rinse Hold, Rinse+, Pre Wash, Dry	
DOOR SWI	TCH TYPE	Bi-Metal type	
WATER I	_EVEL	9 steps (by sensor)	
RESERV	ATION	From 3 hours to 19 hours	
SENSING OF THE L	AUNDRY AMOUNT	Adapted	
FUZZY LOGIC		Adapted	
DISPLAY OF THE REMAINING TIME		Adapted	
ERROR DIAGNOSIS		10 items	
POWER AUTO OFF		Adapted	
CHILD LOCK		Adapted	
AUTO RESTART		Adapted	
TIME SAVE			Adapted

2. FEATURES & TECHNICAL EXPLANATION

2-1.FEATURES



Automatic process from washing to drying.

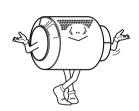
Automatic process from washing to drying can be selected easily.

Washing capacity: 7 kg (Cotton)
Drying capacity: 4 kg (Cotton)



■ More economical by Intelligent Wash System

Intelligent Wash System detects the amount of load and water temperature, and then determines the optimum water level and washing time to minimize energy and water consumption.



Direct Drive system

The advanced Brushless DC motor rotates the Drum directly without belt and pulley.



■ Child-Lock

The Child-Lock system has been developed to prevent children from pressing any button to change the program during operation.



Low noise speed control system

By sensing the amount of load and balance, evenly distributes load to minimize the spinning noise level.

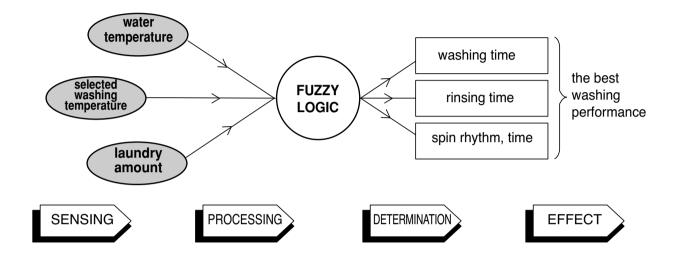


■ Auto Restart

Although the washing machine is turned off by a power failure, it restarts automatically in its stopped process when power is supplied again. And it will be the same when the machine unplugged in operation is plugged in again.

2-2.DETERMINE WASHING TIME BY FUZZY LOGIC

To get the best washing performance optimal time is determined by sensing of water temperature, selected washing temperature and laundry amount.



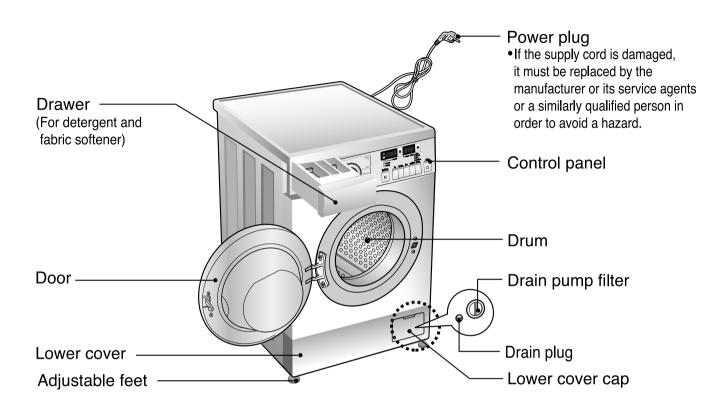
2-3.WATER LEVEL CONTROL

- This model adopts a pressure sensor which can sense the water level in the tub.
- Water supply is stopped when the water level to the preset level, then washing program proceeds.
- Spinning does not proceed until the water in the tub reduces to a certain level.

2-4.THE DOOR CAN NOT BE OPENED

- While program is operating.
- While Door Lock light turns on.

3. PARTS IDENTIFICATION



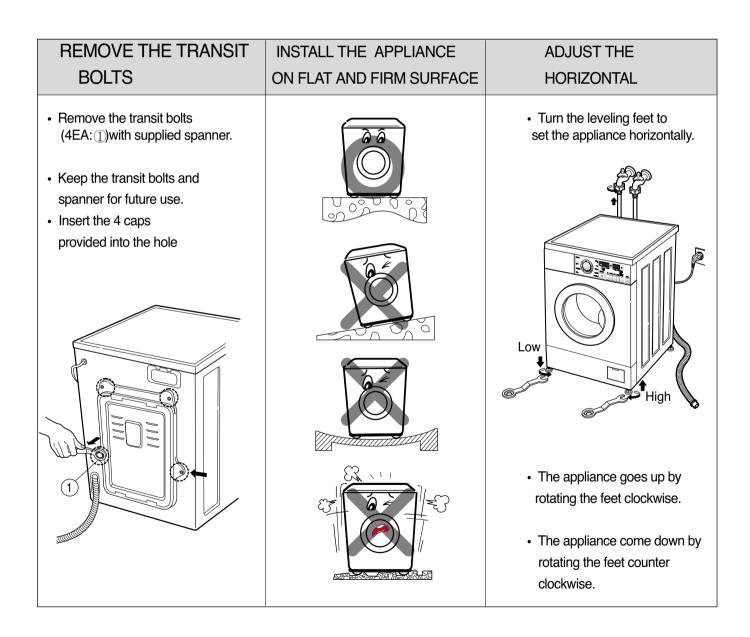
ACCESSORIES



4. INSTALLATION

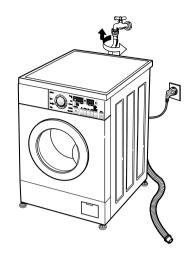
- 1 Before servicing ask troubles of customers
- 2 Check the adjustment(power supply is 220-240V~, remove the transit bolts....)
- (3) Check the troubles referring to the trouble shooting.
- 4 Decide service steps referring to disassembly instructions.
- [5] And then, service and repair.
- 6 After servicing, operate the appliance whether it works O·K or NOT.
- STANDARD INSTALLATION

The appliance should be installed as follows.

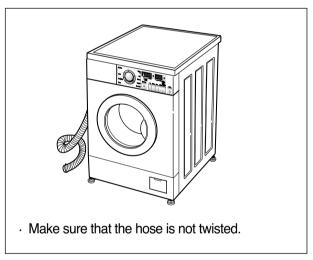


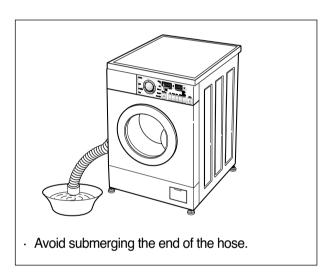
■ HOW TO CONNECT INLET HOSE

- Check that the rubber packing is inside of the valve connector.
- Connect the inlet hose firmly to prevent leak.



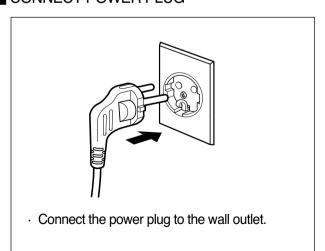
■ CONNECT DRAIN HOSE

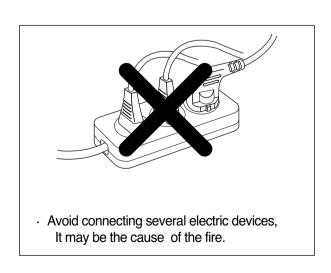




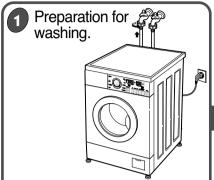
* The drain hose should be placed under 100cm from the floor.

■ CONNECT POWER PLUG

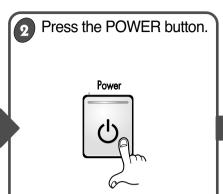




7 TEST OPERATION



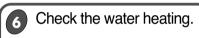
- Connect the power plug to the outlet.
- · Connect the inlet hose.



Press the Start/Pause button.



• In case of Coloreds program.





 Press the Time Delay and Rinse Hold buttons simultaneously and the present temperature will be displayed. Check automatic reverse turn.



· Check if the drum rotates clockwise and counterclockwise.

Check the water supply.



 Check if water is supplied through the detergent dispenser.

- 7 Check drain and spin
- Turn off Wash and Rinse after pressing the Start/Pause button and start the machine again.
- · Check drain and spin.

Power off and open the door
Power



- · Power off and then power on.
- Check if the door can be opened after 3 minutes.

Water removal



 If SVC is needed during check, remove the remaining water by pulling out the hose cap.

Wash program selector

- 8 program can be set depending on the type of the laundry.
- If the power button is pressed, Cotton program is automatically set.
- By turning the dial, [Cotton-Synthetic -Wool/Silk-Hand Wash -Drain-Rinse+Spin-Quick 30-Delicate]can be selected. (The opposite is possible)

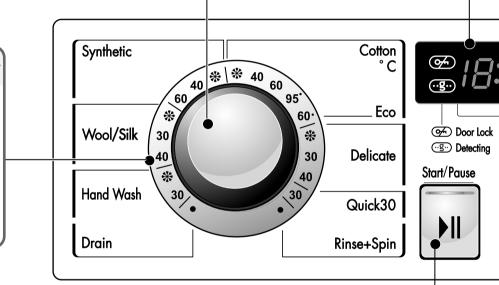
LED display

- Display the estimated remaining time (Hour : Minute) to finish.
- In case of abnormal operation, error indications are displayed.

 (!E, !!E, !!E, dE, EE, FE, PE, EE, LE, dHE)
- See troubleshooting guide.

Water temperature selector

- Press the button to select water temperature.
- 95°C is selected for Cotton only.
- By pressing the button while operating the washer, the present temperature is displayed.



Start/Pause button

- Use the button to start or pause wash cycle.
- The power turns off automatically 4 minutes after the pause button is pressed.

Intensive

- If the laundry is heavily soiled "Intensive" option is effective.
- By selecting the Intensive option, the wash time may be extended, depending on the program selected.

Rinse Hold

- Is selected by pressing the Rinse Hold button this function leaves clothes in the machine; suspended in the water after a rinse without entering into spin.
- To proceed through to a drain or spin, once the rinse hold function is completed using to program dial scroll to the required program. (Spin)

Time Delay

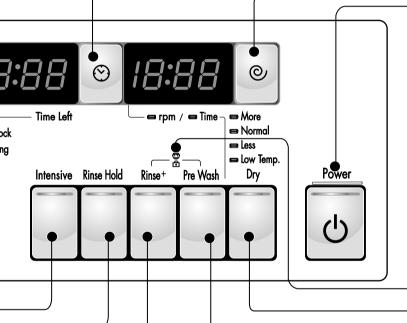
- Press the button when delayed washing is needed.
- When the button is pressed, ∃:□□ is displayed, maximum delay of !9:□□ hours can be set.
- Each press advances time delay by the hour.
- Use [Power] button to cancel [Time Delay]
- [Time Delay] means the time required from the present to the completion of washing.

Spin button

• By pressing the Spin button the spin speed can be chosen.

Power button

- Press the button to turn power on and off.
- Press the button to cancel the delay finish.



Child - Lock

- Child Lock system can be set and canceled by pressing and holding both [Rinse+] and [Pre Wash] buttons simultaneously more than 2 seconds.
- Once **Child Lock** is set, all buttons are inoperable except power button.
- Child Lock system can be set anytime even during Power-off and operation.
- It is automatically cancelled when an operational error occur.

Rinse+

- For additional rinse which may assist in removing traces of detergent residue.
- By selecting Rinse+ function, the rinse time and the rinse water are increased.

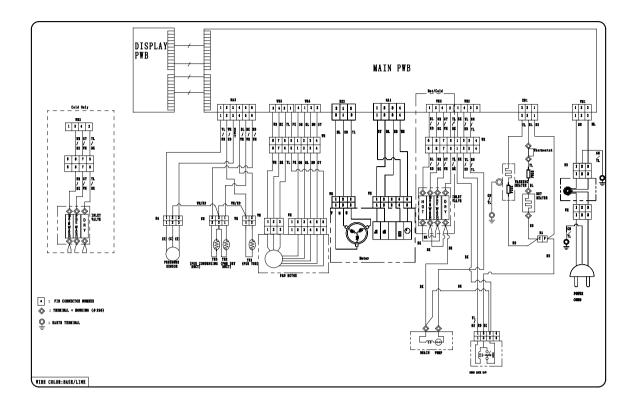
Pre Wash

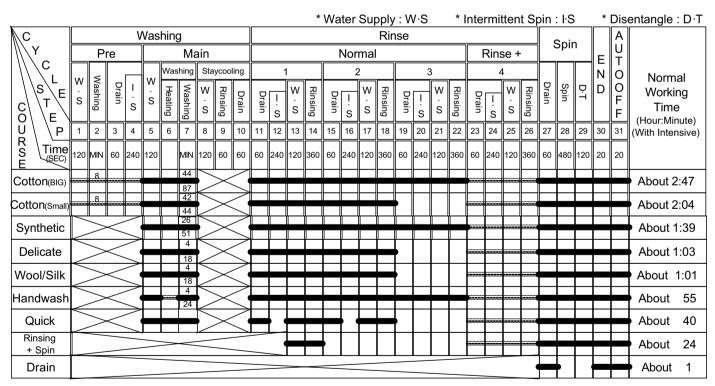
- If the laundry is heavily soiled, "Pre Wash" course is effective.
- Pre Wash is available in Cotton and Synthetic.

Dry

- If you want Dry, select this button.
- By pressing the botton [Normal More Time Low Temp. – Less]

6. WIRING DIAGRAM / PROGRAM CHART





^{*} Basic Cycle

* Optional Cycle

^{*} Pre-Setting Time : Water Supply - 120 sec.

Drain - 60 sec.

^{* ~} Time for varies as the temperature or the amount of laundry

^{*} Basic time is minute in washing chart

^{*} The actual program time can be varied with the load amount, water temperature or ambient temperature

7. TROUBLE SHOOTING

7-1.BEFORE PERFORMING SERVICE

- Be careful of electric shock or disconnecting the parts while troubleshooting.
- Voltage of each terminal in 220-240V~ and DC while applying an electric current.

7-2.QC TEST MODE.

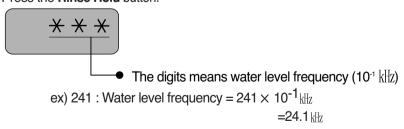
- ① Press Intensive and Rinse Hold button simultaneously.
- ② Power supply on with pressing upper two buttons. Then buzzer sound twice.
- ③ Press the Start/Pause button as follows.

[Press the Start/Pause button more 4 times until stop spinning]

Pressing number of [Start/Pause] button	Checking Point	Display Status	
None	All lamps turn on	(18:88)	
1 time	Counterclockwise spin (left)	Drum rpm (About 40~52)	
2 times	Low speed Spin	Drum rpm (About 55~70)	
3 times	High speed Spin	Drum rpm (About 130~143)	
4 times	Inlet valve for prewash operation	Water level frequency (25~65)	
5 times	Inlet valve for mainwash operation	Water level frequency (25~65)	
6 times	Hot inlet valve in case of hot water fill		
7 times	Inlet valve for Dry operation	Water level frequency (25~65)	
8 times	Clockwise spin (right)	Drum rpm (About 40~52)	
9 times	Wash Heater is in operation for 3 sec.	Water temperature	
10 times	Dry Heater & Dry fan operation		
11 times	Dry fan & motor tums on		
12 times	Auto off operation		

7-3.HOW TO KNOW THE WATER LEVEL FREQUENCY

* Press the Rinse Hold button.



7-4.HOW TO KNOW TO TEMPERATURE OF EACH THERMISTOR AT OPERATING CONDITION.

- Thermistor in tub: Press the [TIME DELAY] and [RINSE HOLD] button.
- Thermistor in dry duct : Press the [DRY] button.

7-5.ERROR DISPLAY.

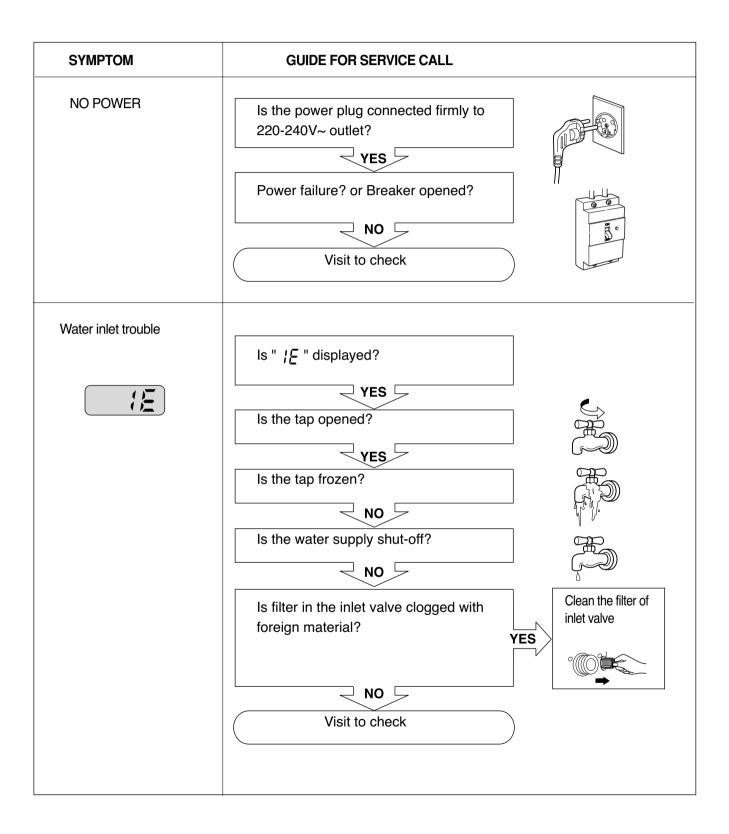
- If you press the Start/Pause button in error condition, any error except 'PE' will disappear and the machine will change into pause status.
- In case of ${}^{\mathbb{F}}_{\mathcal{E}}$, ${}^{\mathbb{F}}_{\mathcal{E}}$, ${}^{\mathbb{F}}_{\mathcal{E}}$, if the error is not resolved within 20 sec., and in case of other errors, if the error is not resolved within 4 min., power will be turned off automatically and the error only will be blinked. But in case of ${}^{\mathbb{F}}_{\mathcal{E}}$, power will not be turned off.

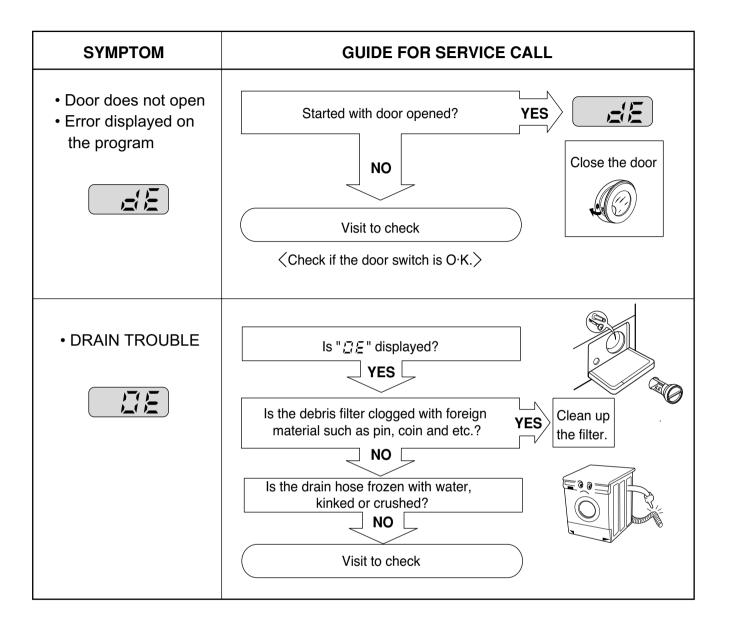
	ERROR	SYMPTOM	CAUSE	
1	WATER INLET ERROR		 Not reached to the water level(2 level)within 4 minutes after water supplied or not reached to the preset water level within 25 minutes. 	
2	DRAIN ERROR		Not fully drained within 5 minutes.	
3	OVERFLOW ERROR	FE	Water is over flowing(over 8 level). If FE is displayed, drain pump operates to drain water automatically.	
4	SENSOR PRESSURE S/W ERROR	FE	The sensor pressure switch is out of order.	
5	DOOR OPEN ERROR		 In case of operating the reservation function or the other function with door opened. Close the door, then the error display is resolved. The door switch is out of order. 	
6	IMBALANCE ERROR	LIE	The appliance is tilted.Laundry is gatherd to one side.	
7	HEATING ERROR	E	• The THERMISTOR is out of order.	

	ERROR	SYMPTOM	CAUSE
8	CURRENT ERROR	<u> </u>	 • MAIN PWB ASSEMBLY is out of order Replace the MAIN PWB ASSEMBLY • Winding in the STATOR ASSEMBLY is short-circuited. Replace the STATOR ASSEMBLY • "¿¿ " is displayed during a high spin □ Replace the LEAD WIRE ASSEMBLY (MOTOR)
9	MOTOR ERROR	15	The connector in the LEAD WIRE ASSEMBLY is not connected to the connector of STATOR ASSEMBLY Reconnect or repair the connector The hall sensor is out of order/defective. Replace the STATOR ASSEMBLY
10	DRY HEATOR ERROR	<u>, </u>	 The Dry Heater is out of order Replace the Dry Heater The Connector of the Dry Heater is not connected properly to the connector in the Main PWB ASSEMBLY Reconnect or repair the connector The Dry fan motor is out of order Replace the fan Motor.

8. ERROR DIAGNOSIS AND CHECK LIST

8-1.DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION



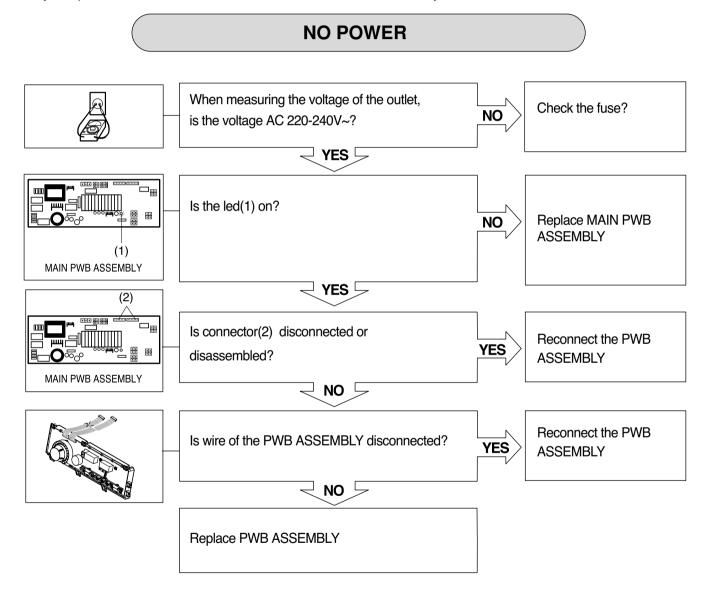


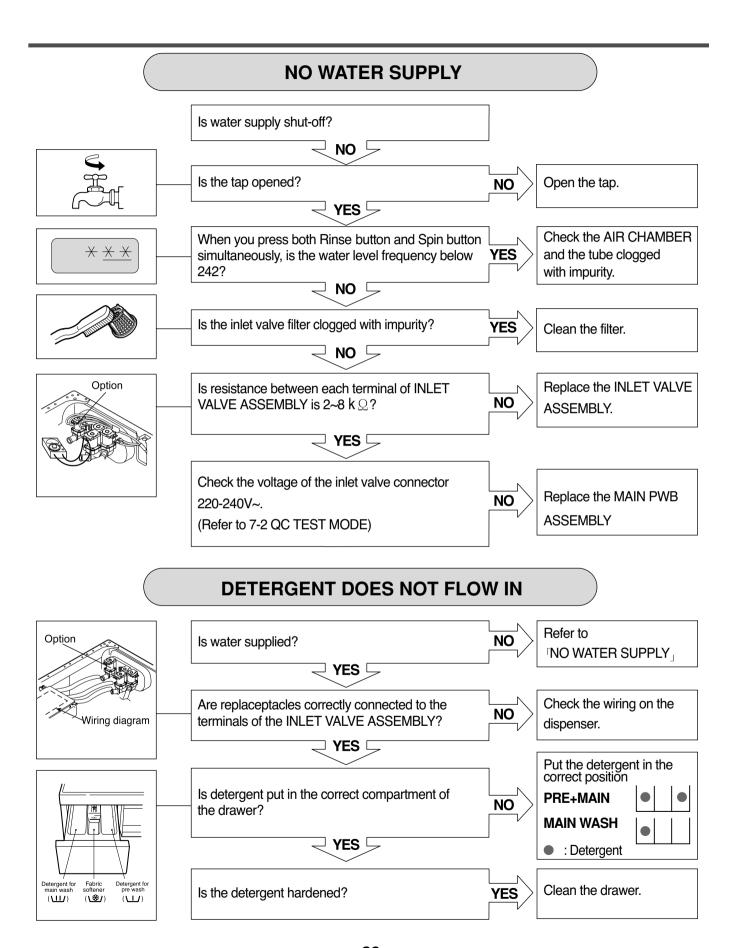
SYMPTOM	GUIDE FOR SERVICE CALL	
 Suds overflow from the appliance. (In this condition, wash and spin do not operate normally) 	Is low-sudsing detergent for the drum washing machine used? YES Is the proper amount of detergent used as recommended? YES Recommend to reduce the using amount of detergent.	LOW-SUDSING
	 * This appliance has the automatic suds sensi operates under much suds condition for goo preventing overflow. * When much suds are sensed, suds removin drain, water input and pause will operate with drum. 	d rinse and g function such as
• No effect of softener	Is softener put in the correct compartment of the drawer? YES Is the drawer closed during wash? YES Is the softener cap clogged? YES Explain how to use softener < Clean the compartment for softener >	Compartment for softener
FE SHE FE LE	Visit to check	

8-2. FAULT DIAGNOSIS AND TROUBLE SHOOTING

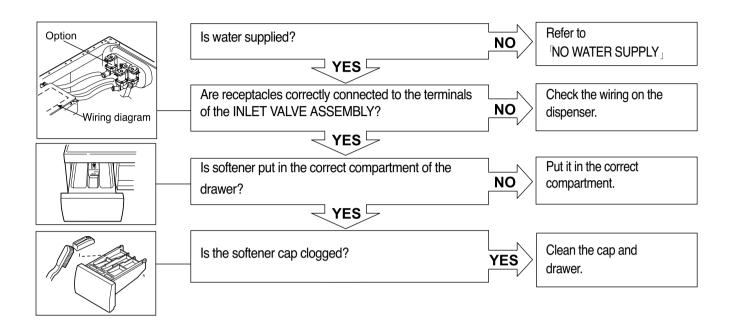
CAUTION

- 1. Be careful of electric shock or disconnecting the parts while trouble shooting.
- 2. First of all, check the connection of each part terminal with wiring diagram.
- 3. If you replace the MAIN PWB ASSEMBLY, Put in the connectors correctly.

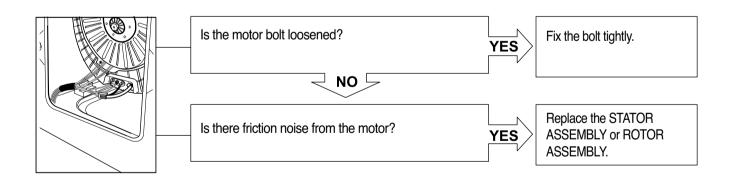




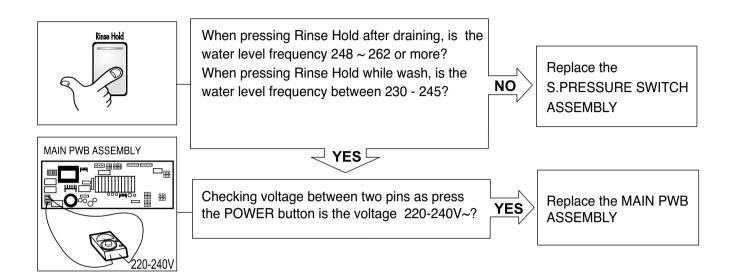
SOFTENER DOES NOT FLOW IN



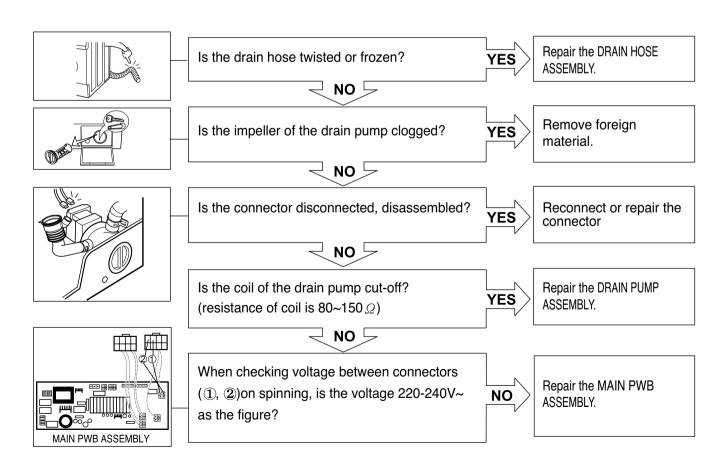
ABNORMAL SOUND



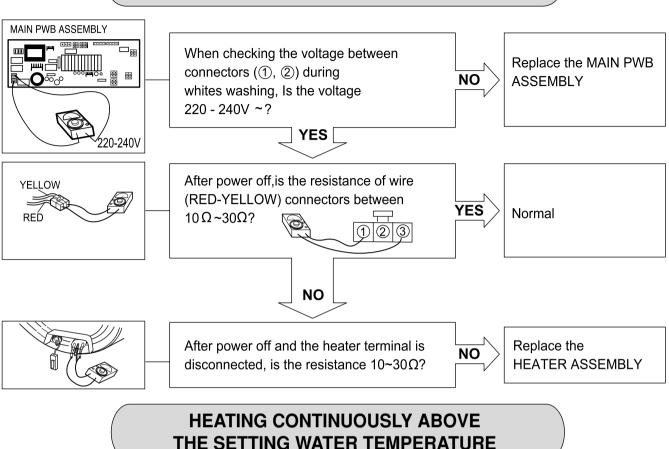
HEATING WITHOUT WATER



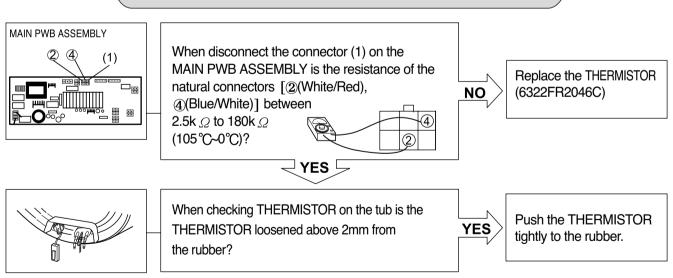
DRAIN MALFUNCTIONING



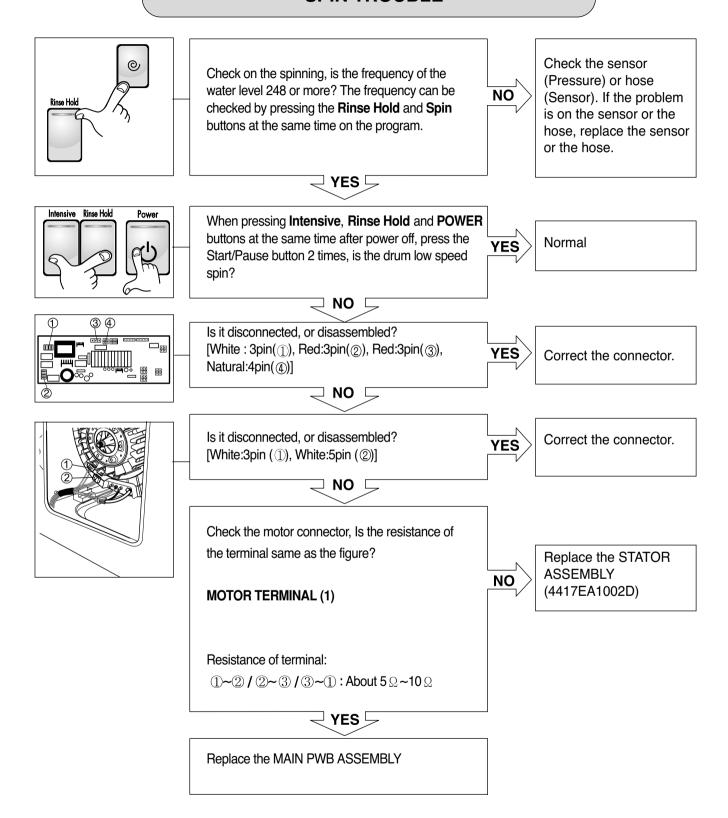




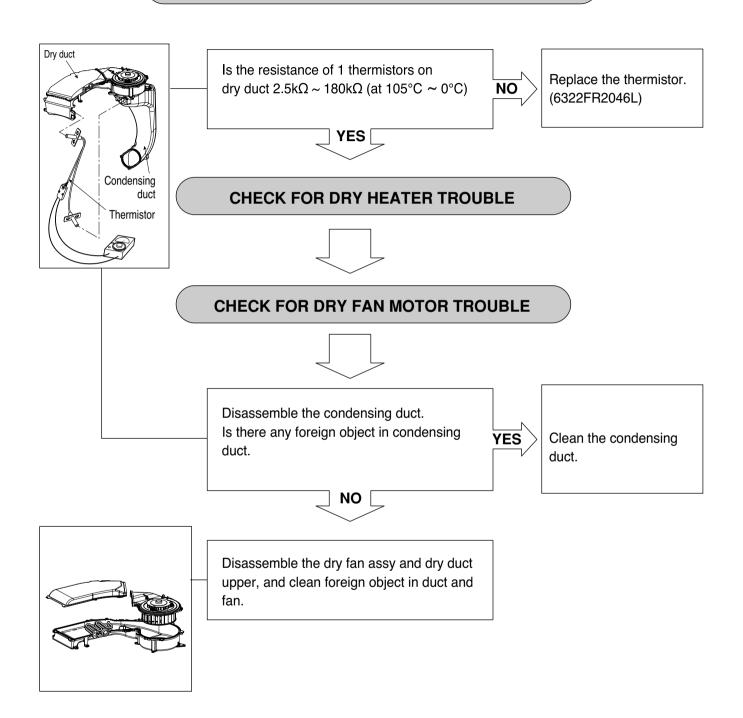
THE SETTING WATER TEMPERATURE



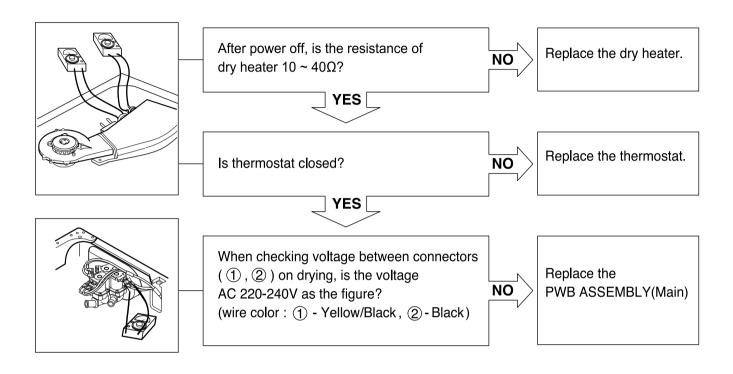
SPIN TROUBLE



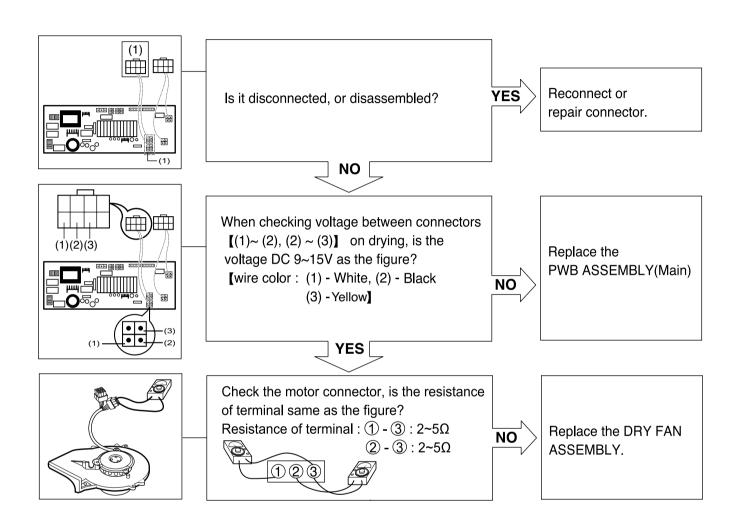
[dHE] ERROR DISPLAY



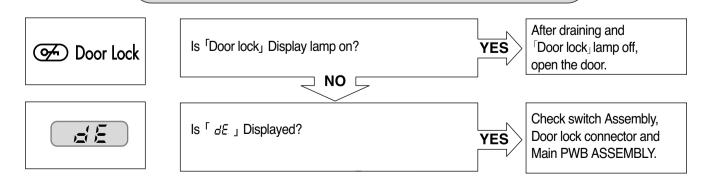
DRY HEATER TROUBLE



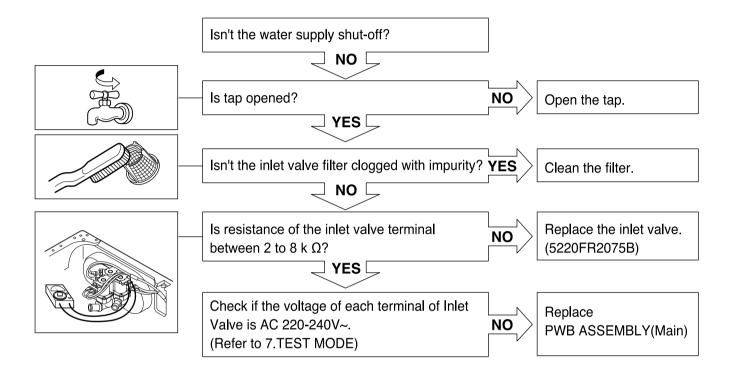
DRY FAN MOTOR TROUBLE



DOOR DOES NOT OPEN



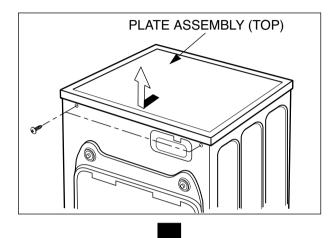
LOT OF VAPOR IN DRAWER WHEN DRYING



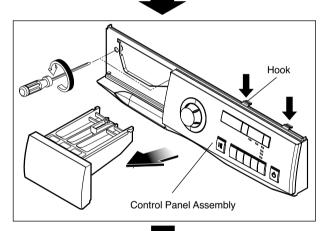
9. DISASSEMBLY INSTRUCTIONS

* Disassemble and repair the parts after pulling out power cord from the outlet.

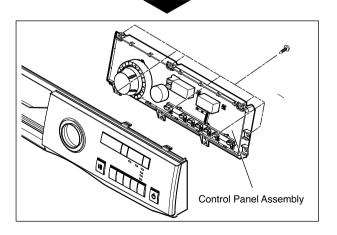
CONTROL PANEL



- ① Unscrew 2 screws on the back of the top plate.
- 2 Pull the top plate backward and upward as shown.

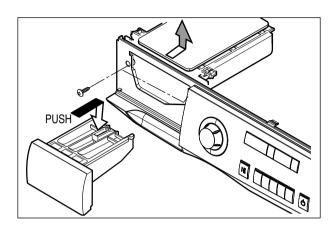


- ① Disconnect the ASSEMBLY connector.
- 2 Pull out the drawer and unscrew 2 screws.
- 3 Push 2 upper hooks down and pull the control panel.

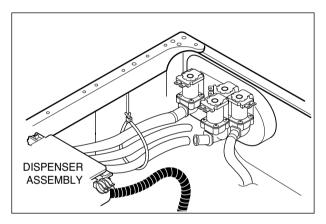


① Disconnect the PWB ASSEMBLY from the control panel by unscrewing 7 screws.

DISPENSER ASSEMBLY

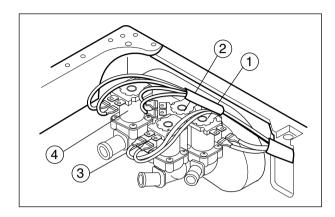


- ① Disassemble the Top Plate Assembly.
- ② Pull the drawer to arrow direction.
- ③ Two screws are unscrewed.



- ① The hose clamps and the hose are disassembled.
- ② The ventilation bellows are disassembled on the tub.

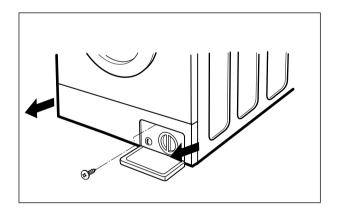
INLET VALVE



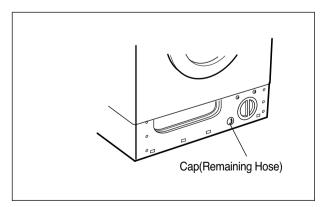
- ① Disconnect the wiring connector.
- ② Remove the valve by two screws of the valve holder.
- * When reconnecting the connector

VALVE ① (DRY)	YL/BK - BK
VALVE ② (PRE-WASH)	GY/WH - BK
VALVE ③ (NORMAL-WASH)	WH/BK - BK
VALVE 4 (HOT)	BL/RD - BK

COVER LOWER



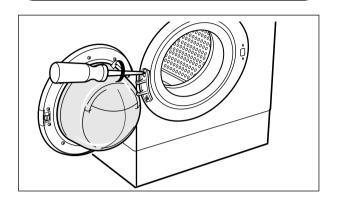
① Remove the lower cover to arrow direction after one screw is unscrewed.



Removing method of remained water

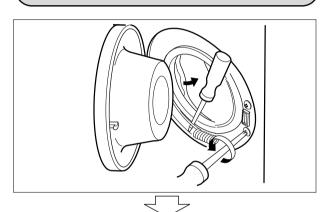
- ① Rotate the Cap(Remaining Hose) to arrow direction.
- 2 Pull it out from hose.
- First, prepare a bucket to put in the remained water.

DOOR

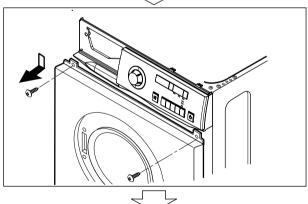


- ① Open the door completely.
- ② Remove the two screws from the hinge.
- * When removing the Door Assembly, it is necessary to hold the Bracket that is inner of the Cabinet Cover.

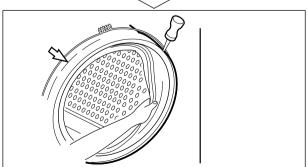
GASKET



- ① Take apart the CLAMP ASSEMBLY (cabinet).
- ② Unscrew 2 screws from the CABINET COVER.
- 3 Open the lower cover cap and unscrew 1 screw inside
- 4 Take apart the LOWER COVER.

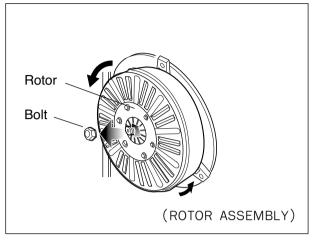


- ① Disassemble the CONTROL PANEL ASSEMBLY. (Refer to page 29)
- ② Unscrew all the screws on the upper and lower sides of the CABINET COVER.



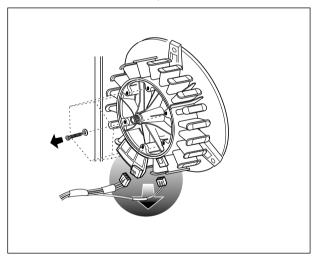
- 1) Take apart the tub CLAMP ASSEMBLY
- ② Make sure that the drain hole of the GASKET is put beneath when reassembling the GASKET.
- *Refer to the arrow mark on the TUB COVER.

ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER



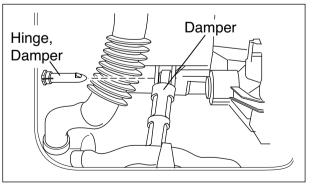
- ① Remove the back cover.
- ② After loosening the bolt, Rotor, pull out the rotor.





- ① Remove the 6 bolt from the stator.
- ② Disconnect the 2 connectors.

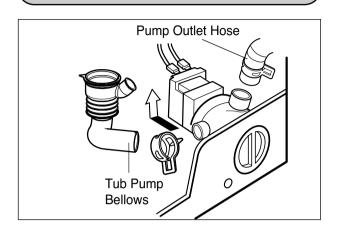




(FRICTION DAMPER)

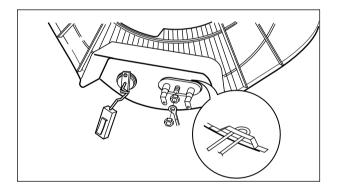
- ① Remove the bolts at the Tub.
- ② The Hinge(Damper) at the base is pulled off pressing on the snaps at the sharp end.
- ③ The hinge at the base is pulled off. (To arrow direction)

PUMP



- ① Remove pump outlet hose.
- ② Remove tub pump bellows.
- ③ Remove cap(Remaining Hose).
- 4 Disconnect the wiring.
- ⑤ Three screws are unscrewed from the cabinet.
- **6** Remove the pump to arrow direction.

HEATER

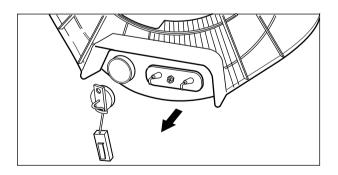


- ① Loosen the nut.
- 2 Remove washing heater by pulling out.

CAUTION

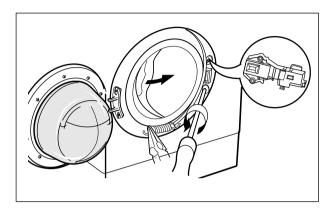
When assembling the washing heater, insert the heater to heater clip on the bottom of tub.

THERMISTOR



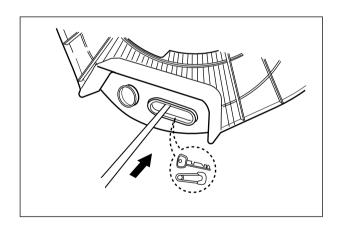
- ① Pull it out by holding the thermistor bracket.
- * If holding the wire and pulling out it, it may be broken.

SWITCH ASSY, DOOR LOCK



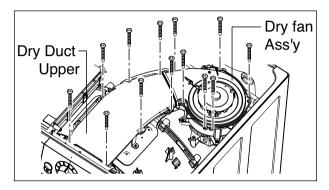
- ① The cabinet cover clamp is removed and the gasket is released.
- ② Two screws are unscrewed.
- ③ The door lock S/W is disconnected form the wiring connector and the strap.

WHEN FOREIGN OBJECT STUCK BETWEEN DRUM AND TUB

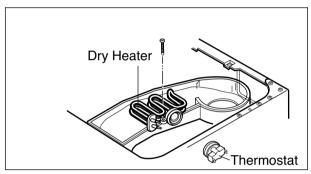


- ① Remove washing heater.
- ② Remove the foreign object(wire,coin,etc) by inserting long bar in the hole.

DRY DUCT

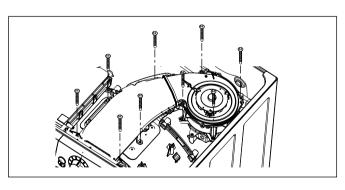


- ① Remove 6 screws and dry fan assembly.
- ② Remove 7 screws and dry duct upper.

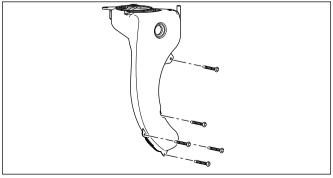


- ① Remove 1 screw and dry heater.
- ② Remove thermostat.

CONDENSING DUCT



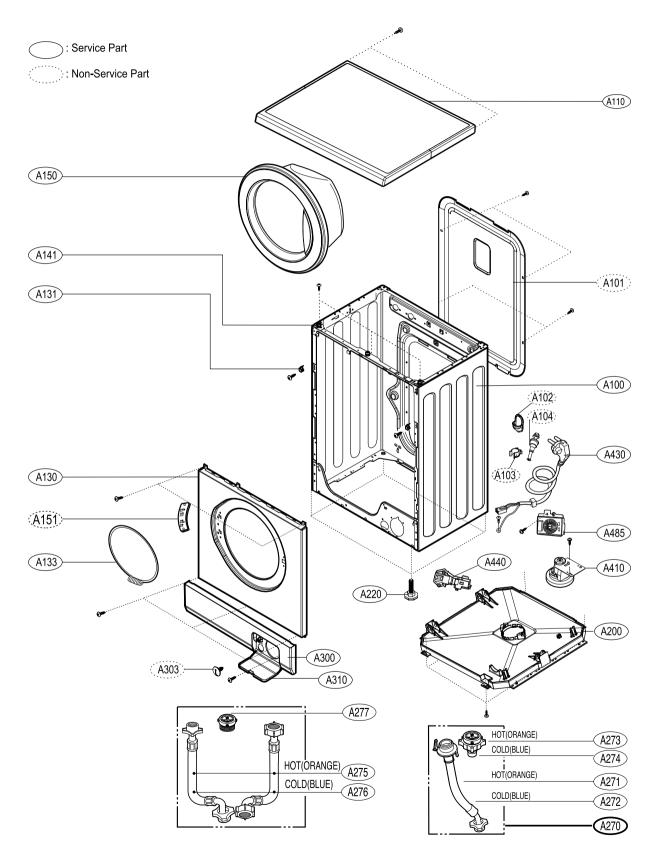
① Remove 17 screws from Dry duct upper and Dry fan Assembly.



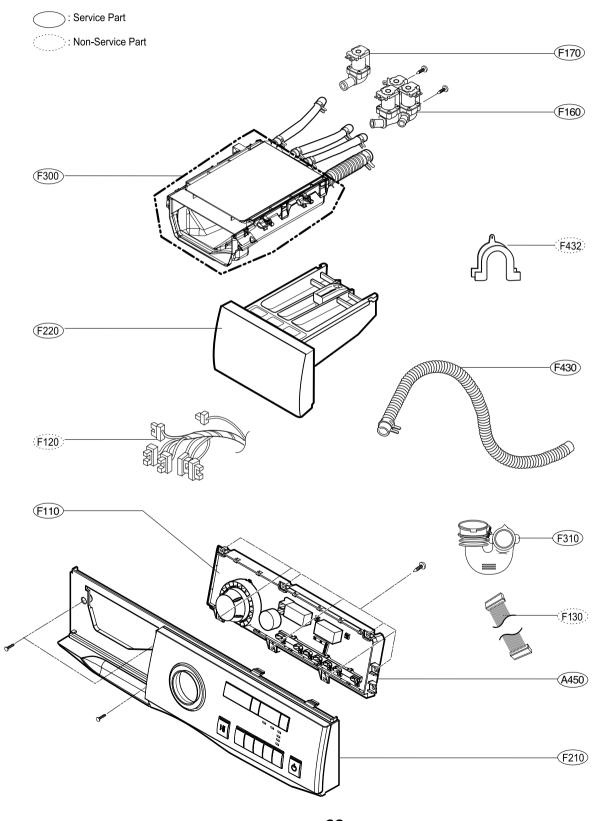
① Remove 5 screws and condensing duct.

10. EXPLODED VIEW AND PART LIST

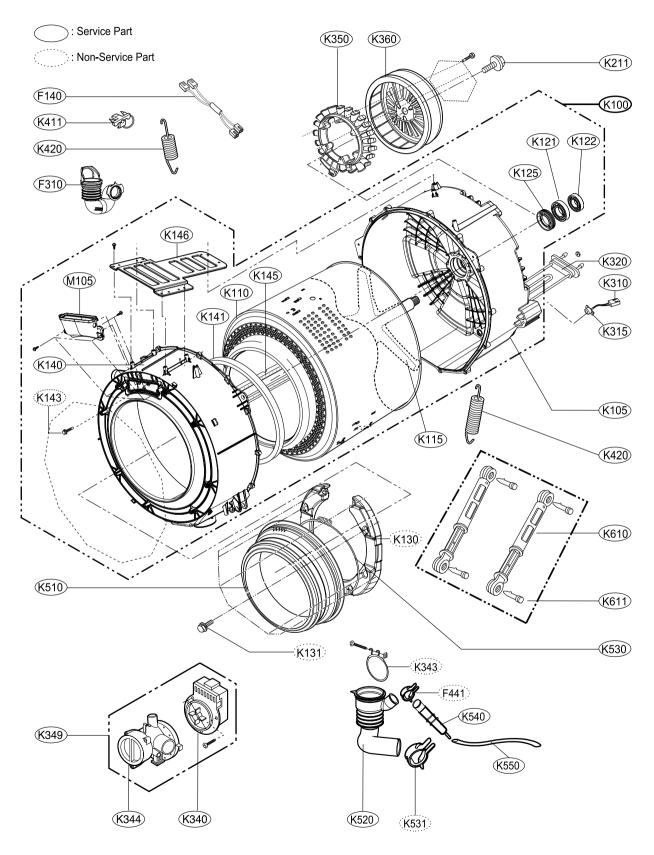
10-1.THE PART LIST OF CABINET ASSEMBLY



10-2 THE EXPLODED VIEW OF CONTROL PANEL & DISPENSER ASSEMBLY



10-3 THE EXPLODED VIEW OF DRUM & TUB ASSEMBLY



10-4 THE EXPLODED VIEW OF DRYER

:Non-service part

__:Service part

